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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,897	08/01/2002	Patrick Mattes	R.35482	8888

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EXAMINER

HWU, DAVIS D

ART UNIT	PAPER NUMBER
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3752

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/088,897

Applicant(s)

MATTES, PATRICK

Examiner

Davis Hwu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 19 recites the limitation "the leak fuel return line" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 11, 13, 15, 17, 18, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Zwick.

The patent to Zwick shows an injector for a fuel injection system for internal combustion engines, comprising:

- a high-pressure connection at 14, wherein the high-pressure connection communicates hydraulically with an inflow conduit via a bore (see Figure 1 attached herein);

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- a conduit to the system pressure supply branching off from the bore (please see Figure 1) and a bush 30 with a longitudinal bore 44 disposed in the bore;
- the inflow conduit being supplied with fuel from the high-pressure connection through the longitudinal bore of the bush, and the fuel inflow to the conduit being effected outside the bush;
- wherein both ends of the bush are approximately equally spaced from the branching point of the conduit (see Figure 1);
- a leak fuel return line 58 wherein the leak fuel return line communicates with the conduit to the system pressure supply (Column 5, lines 56-57) as recited in claims 17 and 18.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12, 14, 16, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwick.

Zwick does not disclose the amount of play as recited in claim 12 or the 15 to 20 bar as recited in claims 24-27, however, it would have been an obvious matter of design choice to have made the amount of play as recited, since such a modification would have involved a mere change in the size of a component which is generally recognized as being within the level of ordinary skill in the art when there is no disclosure as to the

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criticality of such a modification and it also would have been an obvious matter of design choice to have the minimum pressure of 15 to 20 bar since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

8. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwick in view of Hickey et al.

Hickey et al. teach a fuel injector comprising a drain circuit having a pressure holding valve 68 disposed in the drain circuit to regulate fuel being drained. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Zwick by incorporating a pressure holding valve in the leak fuel return line as taught by Hickey et al. in order to regulate the fuel being drained.

9. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwick in view of Igashira et al.

Igashira et al. teach a fuel injector comprising piezoelectric actuator 92 and a hydraulic booster 96 which is filled via a conduit to the system pressure supply in which elements 92 and 96 in combination drive a plunger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Zwick by using a piezoelectric actuator and a hydraulic booster to reciprocate the plunger as taught by Igashira et al. instead of using a cam since Igashira et al. teach that such arrangements are known in the art and also the device of Zwick would function properly with such arrangements.

### ***Conclusion***

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10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Bader et al. and Gaskell are pertinent to Applicant's invention.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davis Hwu whose telephone number is 703-305-1663. The examiner can normally be reached on M-F 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Y. Mar can be reached on (703)308-2087. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Davis Hwu